CHAPTER 4 - GROVER McLAUGHLIN LOT

PROPERTY DESCRIPTION AND LAND USE HISTORY

The McLaughlin lot is located in the north end of Appleton. It is on West Appleton Road, a mile south of the Searsmont town line and 1.6 miles south of Route 173 (Woodman's Mills). The lot measures 34 acres, though it is listed by the town as 40. The road evenly divides the lot with 17 acres on each side. Road frontage is 1,500' on the east side and 1,400' on the west. A 2½-acre shrub swamp lies along west side of the road. It has a few small trees, but will not be part of the woodland evaluation. The remaining 31½ acres are forested. No buildings are on the lot.

As with most woodland in this area of Maine, the ownership was farmland (both for crops and pasture) a century and a half ago. Stone walls run internally, as well as forming some sections of the boundaries. A cellar hole sits along the town road in the north end of the east half. The triangular area in which it's located plus a small area across the road are depicted as open on the 1961 topographic map. Small garbage dumps are just beyond the stone walls at the west and east corners of the old cropland. An ATV trail cuts across both halves of the lot. The property has been commercially harvested about 40 years ago. The town of Appleton took title of the lot in 1968 as a "tax acquired property."

The property fits within a rural landscape of mostly forest with a few houses along the town road. The Appleton Bog is about a mile southwest. A large swamp associated with the Dead River is about ½ mile to the north. A field is adjacent to the north side. Two houses border the east half, on the northeast and the southwest sides. Also, on the southwest side is the Weymouth Cemetery. The woods around the west and the east corners were heavily cut within the past 10 years. A skid road had entered the McLaughlin lot for a short way along the east boundary. The south side of the east corner had been clearcut and now harbors a sapling stand. A fire had crept across from here and singed a small area of the McLaughlin lot, killing several trees. A snowmobile trail runs along the west boundary on the neighbor's land. In fact, there is the intersection of the Pettengill Trail (heading south), The Nature Conservancy Trail (heading west) and the Old County Road Trail (heading north).

TOPOGRAPHY AND ACCESSIBILITY

The terrain of the property is mostly flat or gently sloping. Most of the lot is a plateau of around 350'. The swamp drains eastward in a seasonal drainage, which exits the lot at 300'. Another small drainage flows out the north corner. The area behind and across the road from the cellar hole is virtually stone free, implying this had been used as crop land. The ground in the south half and west corner of the lot is stony. Direct access into both halves of the property is excellent from Lower Road.

BOUNDARIES

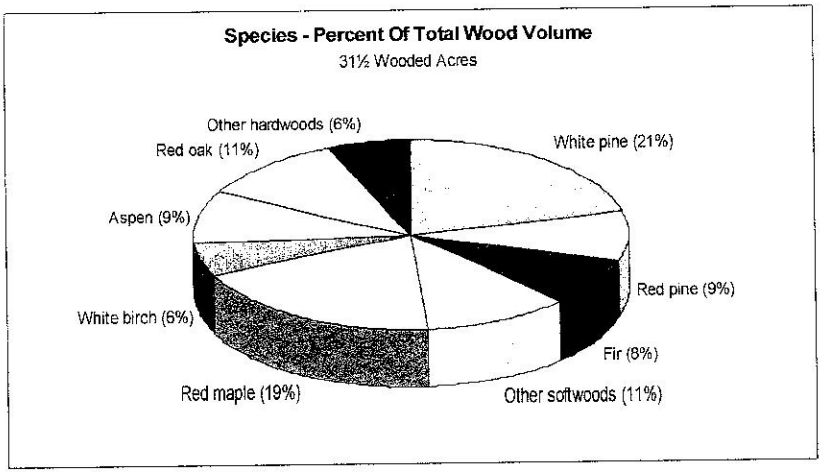
The property has not been surveyed and no monuments mark the corners. Most of the boundaries are delineated with stone walls. The south corner is bounded by the cemetery. A section of the east boundary is ax blazed and painted red between stone walls. The stone wall stops west of the field on the north line, but the line is marked with red paint. The wall along the west boundary curves slightly around the western edge of the swamp. It ends at the next wet run, where both an iron rod and a metal pipe mark the corner between 2 adjacent lots (a north-south line is also flagged). The line is then simply marked with plastic flagging from there to the west corner.

TIMBER RESOURCE

Forests cover 31½ acres of the McLaughlin lot. Most of the acreage is classified as Mixedwood. A shrub swamp with insignificant wood volume (stand 6) accounts for 2½ acres. The distribution of timber type among the 5 forested stands are:

Type	# of acres	% of total
Softwood	1½	5
Mixedwood	24	76
Hardwood	6	19
	31½ acres	100%

In April, 2001, inventory data were taken in the forested areas at 23 variable radius plots on cruise lines running parallel to the west and east boundaries. One plot represents an average of 1½ acres. The overall volume estimate is accurate within ±13% nine times out of ten. Error is greater for individual species, products and values.



The above graph shows a breakdown of total wood volume among species. Softwood and hardwood are evenly divided. Two trees make up the bulk of the commercial round wood (trees 6"+ dbh) – white pine and red maple. Other moderate volume species, in descending order, are red oak, red pine, aspen, fir and white birch. Less common species present include cedar, hemlock, tamarack and yellow birch. Beech, white ash, sugar maple, spruce and black cherry are present in very small amounts.

Forest stands are further identified based on dominant canopy height and canopy closure. The woodland is made up of mostly poles that are 50-75 years old. Among the larger sawtimber size trees are scattered large white pines that escaped the last harvest. Stand canopies are either moderate or moderate to tall. Forest canopies are fully closed.

Tree quality, defined as trees with the potential to become sawtimber, is fair. Most of the unacceptable trees are fir, which virtually always is considered pulpwood, due to its predisposition towards early onset of internal rot. Having reached their physiological maturity, some of the firs have died. These are either still standing as snags or have fallen over, adding coarse woody debris to the forest floor. Others are in serious decline. Many of the hardwoods and white pine are also poor quality. Many of the larger pine exhibit an open-grown form of many large lower limbs and multiple stems, which degrade the tree's quality. Some of the stems are designated as pulp due only to small size and is actually good quality growing stock. There are, however, certainly some nice individual stems. Red oak, white pine and red spruce are the most valuable species. Through a program of cutting the poor quality individuals and favoring the better trees, overall tree quality will be maintained or improved over time.

The estimated total wood volume on the McLaughlin lot is 73,000 board feet of sawtimber and 950 cords of pulp/firewood. This is worth about $14,100. For the 31½ wooded acres, this comes to 2,300 board feet and 30 cords per wooded acre, which is about average for mixed forests in this part of Maine. The wood is valued at about $450/acre. Sawtimber volume is dominated by softwood (73%), primarily white and red pine. The pulpwood volume is more evenly divided between soft- and hardwoods. Sawlogs comprise 13% of the total commercial wood volume, which is below average. This percentage will increase over time if the good quality small sawtimber is allowed to continue to grow rather than cut prematurely.

Assuming an average growth rate of ½ cord per acre per year, a sustainable harvest level is the equivalent of 15 cords per year. For a 15-year cutting cycle, 225 cords can then be harvested. This is only a broad total. Due to variability of age, structure and stocking of the forest types, harvest levels will vary among stands. Some may not be cut at all, while others may possibly experience a heavy regeneration cut.

Tree regeneration is mostly the very shade tolerant fir, present as both seedlings and saplings. Spruce is a distant second, with small amounts of white pine, red maple and aspen in spots. The density of the regeneration depends on light/shade conditions and wetness on the forest floor. Woody shrubs are very limited. Blueberry & ground juniper on the dry old field site of stand 3, raspberry in the burn of stand 5, and witch hazel in stand 1.

INSECT, DISEASE AND WEATHER INFLUENCES

Many of the firs are physiological mature and are currently declining. Mortality is common. Many of the tamaracks also are declining. This is attributed to high stress levels from several pests and significantly fluctuating water levels in the recent past. Many of the big old field pines have been affected by the white pine weevil (an insect, the newly hatched larvae of which feed the leading bud at the tips of the trunks and branches). The result is a tree with multiple stems, lowering its economic value. Many of these same pines also have many live lower limbs, a result of growing relatively in the open earlier in its life. These conditions do not harm the tree, but do lower its value as useable sawtimber.

WILDLIFE

Most of the McLaughlin lot is upland forest. Contrasting habitat is the swamp and seasonal streams. Fresh water is a critical habitat element for mammals, waterfowl, birds, fish, reptiles and amphibians. The swamp is listed as Maine Wetland #129. It supports mostly shrubs with scattered small trees. Waterfowl and other water-based animals are probable visitors.

Other wildlife habitat features include the small hemlock/cedar grove in the west corner, aspens and snags (standing dead trees). Sign of both deer and moose has been observed, as well as a flushed partridge. Intact softwood canopy serves as good potential winter yarding areas for deer, but it may be too small to be fully functional. Cavity trees near the wetland are valuable in providing nesting opportunities for ducks such as wood duck, bufflehead, and golden-eye.

The Maine Department of Inland Fisheries and Wildlife has identified the swamp, plus some wet woods on the swamp's north side, as a Critical Wildlife Habitat. It is Waterfowl and Wading Bird Habitat #5W5 and has a high habitat value. No evidence of threatened or endangered plants or animals was noted during the field work. Should such plants or animals be discovered, appropriate measures should be adopted to ensure protection of their habitat.

RECREATION AND AESTHETICS

The highest recreational use is probably the ATV trail. The property is not posted and quite likely is visited by hunters in the Fall. Parking is limited. Significant aesthetic features include the swamp and the scattered big old field pines.

LEGAL RESTRICTIONS

There is no Shoreland Zoning on the McLaughlin lot. See the General Chapter for details.

ESTIMATES OF TIMBER VOLUMES AND VALUE BY SPECIES

Town of Appleton - McLaughlin Lot
Appleton, Maine
April 29, 2001

Products, Species	Volume[1,2]	Stumpage[3] Rate	Value[4]
Sawtimber:	MBF	$ per MBF	
White pine, grade	23	$130	$2,990
White pine, pallet	10	50	500
Red pine	11	60	660
Spruce	4	110	440
Hemlock	4	50	200
Tamarack	2	50	100
Red oak	6	225	1,350
Aspen	7	40	280
White birch	5	100	500
Yellow birch	1	110	110
Totals:	73 mbf		$7,130
Pulpwood:	Cords	$ per cord	
Spruce-fir	100	$15	$1,500
White pine	170	5	850
Cedar	40	0	0
Hemlock/Tamarack/R. pine	130	6	780
Hardwood pulp*	320	5	1,600
Firewood*	190	12	2,280
Totals:	950 cords		$7,010

Total Estimated Stumpage Value = $14,140

[1] Total timber volume estimate is ± 13% nine times in ten. Error is greater for individual species or products.
[2] Pulpwood volumes include topwood from sawtimber trees.
[3] Stumpage price estimates based on recent local averages, Winter, 2001. They are gross values and do not reflect forester fees.
[4] Represents the "liquidation value" if the entire property was cleared. This is presented for illustrative purposes only and is not recommended.
* Aspen and white birch is pulpwood; balance of the hardwood pulp is split evenly between firewood and pulp

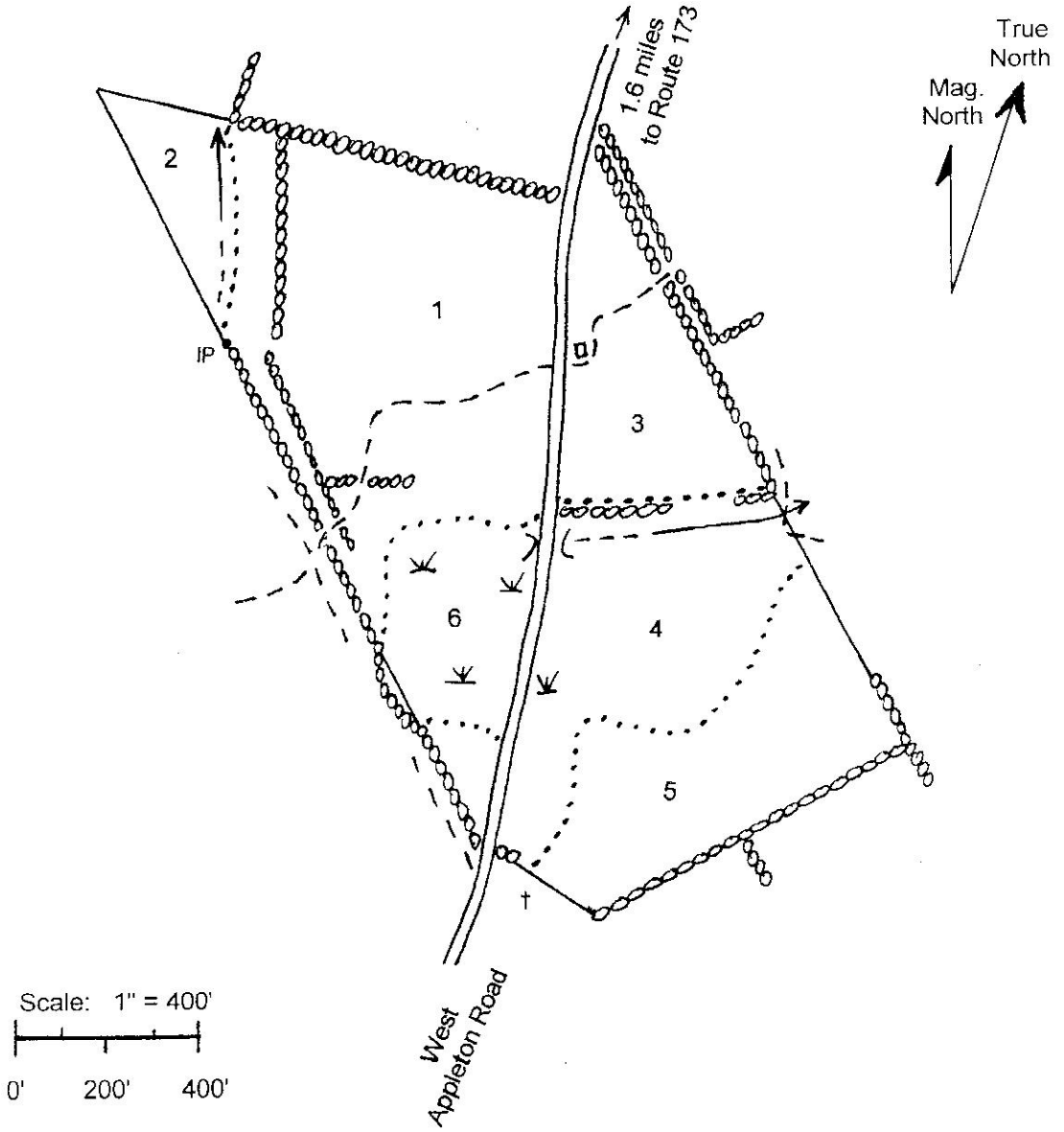
Mitchell Kihn; LPF # 3206
Mid-Maine Forestry

PROPERTY MAP

Town of Appleton

Grover McLaughlin Lot

Map 8; Lots 5 & 15



LEGEND

Stand number and boundary	2
Iron pipe	IP •
Stone wall	oooooooooo
Trail	– – – –
Swamp	

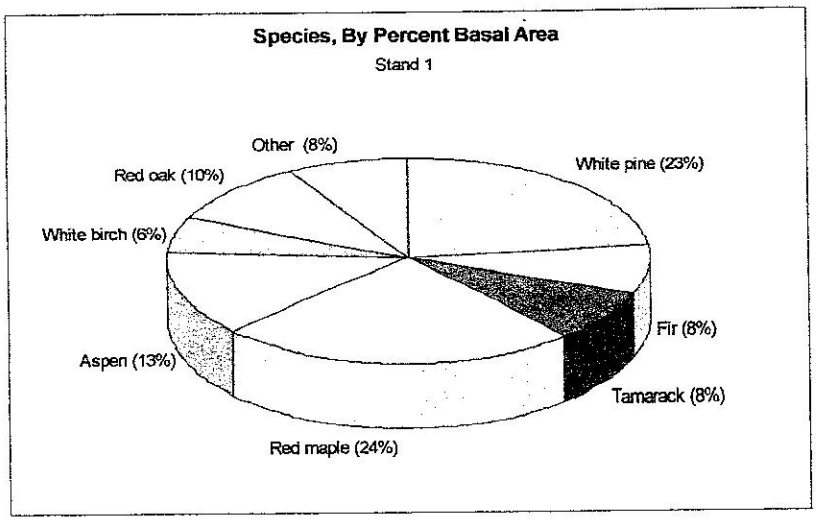
FOREST STANDS

Stand	Type		Acres
1	M2/3A	Mixedwood pole/sawtimber	13
2	S2/3A	Softwood sawtimber	1½
3	M2A	Mixedwood pole/sawtimber	5
4	H2A	Hardwood poletimber	6
5	M2A	Mixedwood poletimber	6
			31½
Swamps:			
6	H2C	Hardwood saplings/poles	2½
		TOTAL PROPERTY =	34 acres

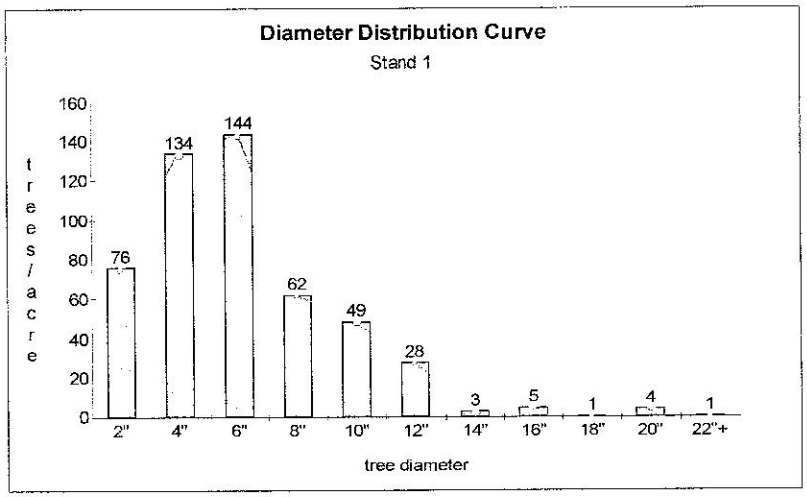
STAND DESCRIPTIONS AND RECOMMENDATIONS

STAND 1 - MIXEDWOOD POLE/SAWTIMBER (M-2/3-A) 13 acres

Stand 1 is the largest stand of the lot. It is on the west side of W. Appleton Road. It is adjacent to the road, the swamp and 2 side boundaries. Access is easy from the town road. A wood yard would best be established right at the trail entrance. A small section in the south corner is cut off by the swamp. The trail provides access to the west. No other roads or trails are in the stand. The terrain is flat to gently sloping. The soil is mostly moderately well drained, but with a finger of wetter ground through the middle. The west side is dry and well drained. Despite the varying drainage regimes, site quality is excellent for growing pine. Operability with machines is very good, limited by seasonal ground wetness in the middle.



Stand 1 is a mixedwood stand. It has more hardwoods than softwoods in the overstory with a mix of poles and sawtimber. Red maple and white pine each take up ¼ of the growing space. Species with a moderate presence include aspen, oak, tamarack and fir. Minor species include white birch, red pine, beech, hemlock and black cherry. The 4" and 6" diameter classes have the most stems per acre. Trees range from 2" to 40+" in diameter, with an average of 7". The larger trees are old field white pine scattered about the stand. For canopy level 6"+ diameter stems, the average tree size is 9". With a basal area of 127 ft^2/acre for canopy stems, stand 1 is in the middle of the adequately stocked range. Canopy height is moderate to tall. Closure of tree crowns is high.



Tree quality is variable. There are some nice quality oak, white birch and bigtooth aspen stems. Most of the maple is pulp quality only. Many of the large white pines are low grade because of multiple stems and excessive limbs. Some butts are even too big in diameter to be sold as pulp. Species of declining health are fir, tamarack and quaking aspen. Mortality has resulted in snags &/or stem breakage. The beech is diseased. The average growth rate is about 0.4 cord per acre per year. Standing volume per acre is moderately high with 3.7 mbf of sawtimber and 30 cords of pulp. White pine makes up 60% of the sawtimber volume. Others include white birch, aspen, oak, red pine and tamarack. Sawtimber volume comprises a moderate 20% of the total volume of commercial wood. Regeneration is inadequate in much of the stand, but is mostly fir saplings where present.

RECOMMENDATIONS

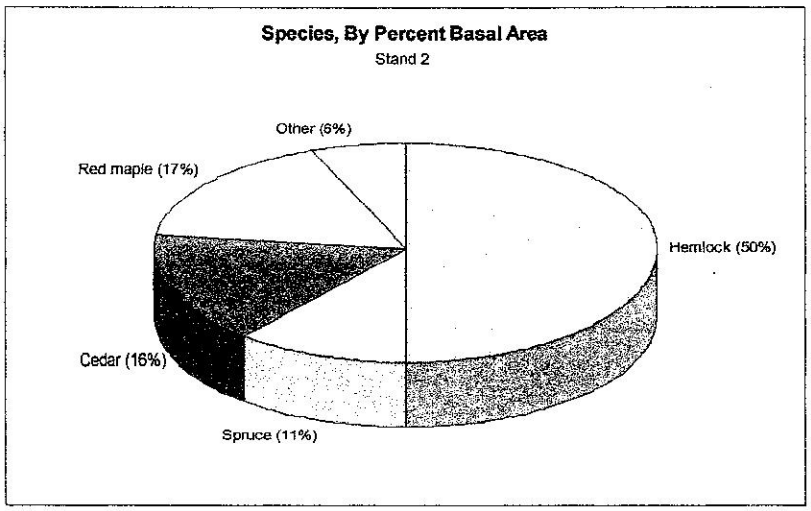
The long-term objective should be timber production. The structure goals should be a minimum basal area of 90 ft^2/acre and a largest diameter tree of 24". A 15-year selection harvest cycle will produce a sustainable yield of 100 cords per harvest. Manage on an uneven-aged basis.

Although not a high priority, a light harvest could be performed to remove ¼ of the canopy basal area. As an improvement cut, the better quality individuals, especially oak and pine, should be favored. Selected aspen, tamarack and large pine can be cut, as well as the fir. Small openings should be encouraged to initiate regeneration. Some of the large pine should be kept not for their wood value, but for structural diversity in the stand. The result of this harvest will shift the species mix more to hardwoods. Most of the harvest would be pulp and firewood. This will yield about 100 cords for an estimated value of $800. Treatment of stand 1 is moderate priority.

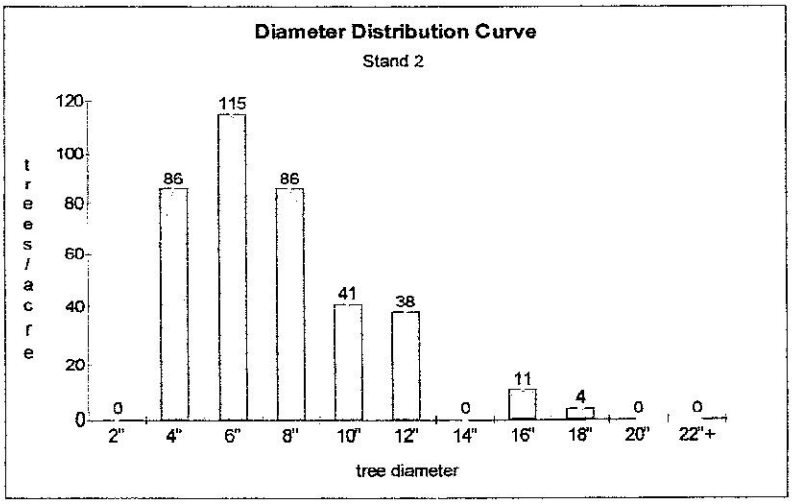
Protect the swamp (for wildlife habitat, aesthetics and ecological integrity) by either a no-cut buffer, or at least a buffer where cutting is minimal.

STAND 2 - SOFTWOOD SAWTIMBER (S-2/3-A) 1½ acres

Stand 2 is in the west corner, beginning at the bottom of the slope in the wet run. It is accessed through stand 1 (which requires crossing the seasonal stream). The terrain undulates slightly. The soils are generally moderately deep to shallow to bedrock, and are dry except through the drainage. Site quality is excellent for white pine. Operability with machines is good.



This softwood stand is dominated by hemlock, but also contains cedar, spruce and white pine. Hardwoods include maple and aspen. Sawtimber takes up the most growing space, but poles are still a significant component. Trees range from 4" to 18" in diameter, with an average of 8". The basal area is 127 ft^2/acre for canopy stems, which is only a little above the recommended stocking level. The canopy height is moderate to tall and has a closed crown.



The quality of the hemlock is very good, whereas most of the cedar and hardwoods are generally pulp quality. Growth rate is about ½ cord per acre per year. Wood volume is moderately high at 30 cords of pulpwood and 3.5 mbf of sawtimber per acre. Sawtimber volume comprises a moderately high proportion (19%) of total commercial wood volume. Regeneration is mostly fir and spruce saplings.

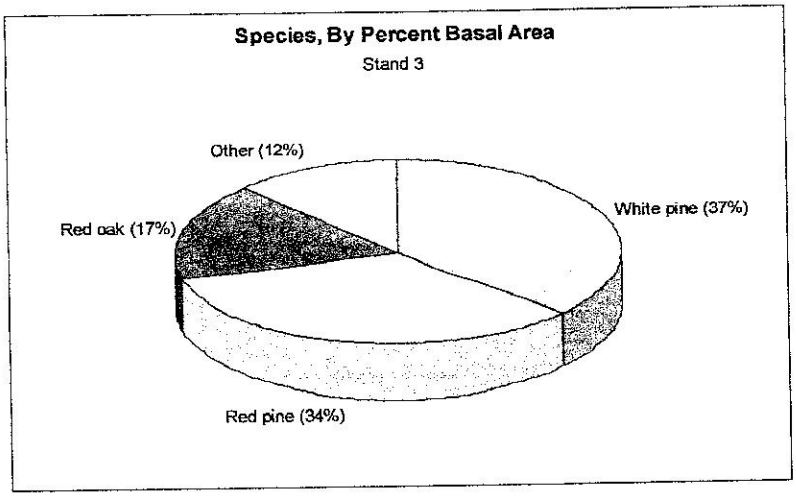
RECOMMENDATIONS

Long-term objective is timber production, tempered with the protection of the wet run. Aim for a stocking of 120-130 ft^2/acre basal area, consisting of an uneven-aged mix of trees. Maintain the stand as predominantly hemlock.

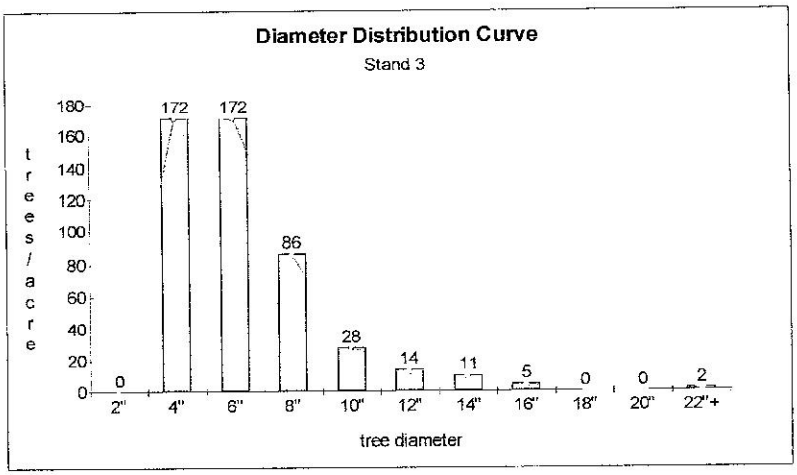
There is currently no excess of stocking in stand 2. Allow to grow and re-evaluate in 10 years. Low priority.

STAND 3 - SOFTWOOD POLE/SAWTIMBER (S-2-A) 5 acres

Stand 3 is in the north end of the eastern half of the property. Triangular in shape, it is bounded by W. Appleton Road, the property boundary and a stone wall along a seasonal stream. It is easily accessible directly from the road. The terrain is a gentle slope. Operability with machines is excellent. The soils are moderately deep to shallow to bedrock and are well drained. Site quality is excellent for growing white pine. The ATV trail continues from stand 1 across the road and cuts across the stand to the neighbor's yard. A cellar hole sits along the road by the trail entrance. Stand 3 seems to be old crop land, being devoid of stones, with good drainage and slope, smooth surface and located behind the old farmhouse. It is depicted as open on the 1961 topographic map. A double-walled lane runs along the outside of the property boundary.



Stand 3 contains mostly softwoods. White and red pines each account for about 1/3 of the growing space, while oak is 1/6. Other species include red and white spruce, tamarack, aspen and white birch. A dense red pine grove is down hill along the boundary. Elsewhere, it is scattered. It's not certain whether the red pines are surviving remnants of a larger plantation effort 40 years ago, or are offspring of a large grandmother tree in the grove. Poletimber dominates the growing space, but there are plenty of sawtimber size trees also. The number of stems per acre is highest in the 4" and 6" diameter classes. Trees range up to 24" in diameter, with an average of 7". The basal area is 131 ft^2/acre for all stems. For 6"+ commercial trees the average diameter rises to 8" and the basal area drops to 116 ft^2/acre. Stocking is at the low end of the adequate range. It's variable, however, and ranges from dense pockets of pine to small canopy openings of just saplings. The overall canopy height is moderate with full crown closure.



Tree quality varies. The red pine and spruce is good, but the most of the white pine is forked due to the white pine weevil and has poor open-grown form. Growth rate is about ½ cord per acre per year. Standing volume is moderate at 28 cords of pulpwood and 2.3 mbf of sawtimber per acre. Softwood is 90% of the sawtimber and 80% of the pulpwood. Sawtimber volume comprises a slightly lower than average proportion (14%) of total commercial wood volume. Where present, the regeneration includes white pine, oak, tamarack, aspen and fir. Blueberry and ground juniper are also present in the semi-openings, indicative of the area's relatively recent open condition.

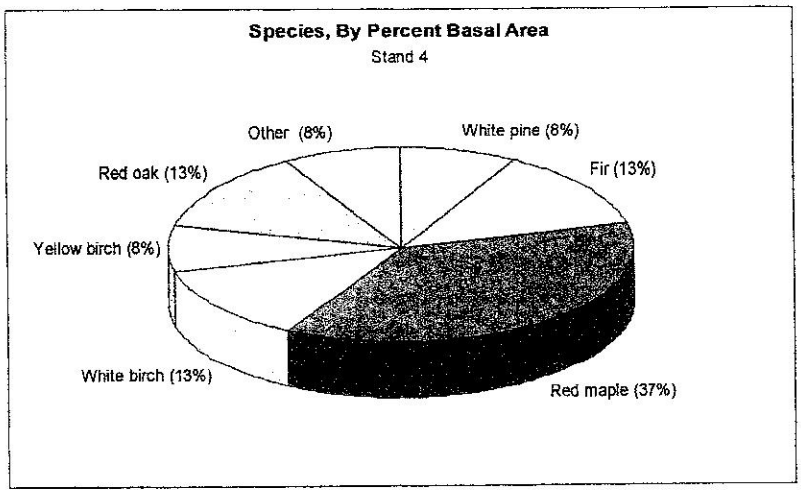
RECOMMENDATIONS

Long-term objective for stand 3 is timber production. Stocking should be 100-150 ft^2/acre of basal area, depending on the average diameter (higher the diameter, the higher the optimum basal area). Favor the better quality spruce, white and red pine and oak. Stand structure has already become somewhat uneven-aged with patchy stocking.

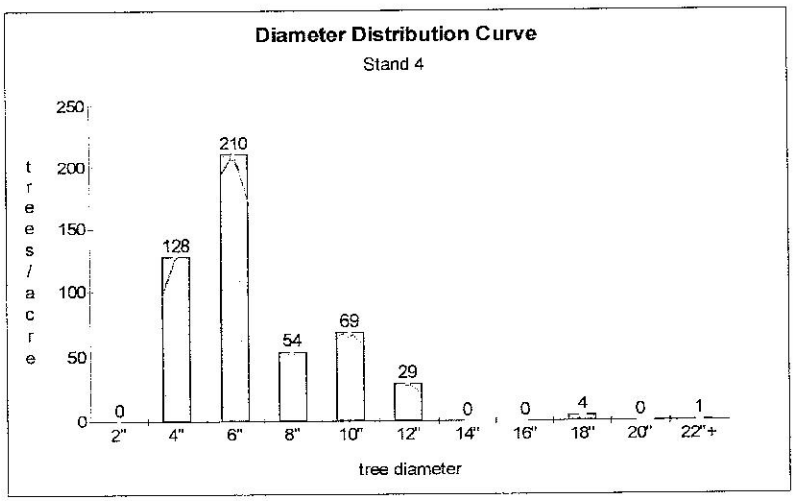
Although the average stocking doesn't call for it, there is an opportunity to thin some dense spots as well as salvage the poor quality white pine. For economic efficiency, this would be best if combined with the cutting of another part of the property, such as stand 1. Estimated yield is a modest 50 cords and 2 mbf, for a value of about $400. Moderate priority.

STAND 4 - HARDWOOD POLETIMBER (H-2-A, with scattered WP-3) 6 acres

Stand 4 is in the middle of the eastern half of the property, between stands 3 and 5. It is accessible directly from W. Appleton Road. Access will most likely come from stand 3 since the drier ground is better suited for a wood yard. The ground is gently sloping with soils ranging from moist to dry. The ground across the road from the swamp is wet. A seasonal stream that drains the swamp flows eastward along the stand's north side. Site quality is excellent for both white pine and red oak. Operability with machines is very good contingent on dry or frozen conditions for the moist ground. The east neighbor's skid road swerves into the stand for a short ways at the point where the stream exits the lot. Also at that spot is an old dump of tires and metal. Very old stumps indicate a harvest about 40 years ago.



Stand 4 is a hardwood pole stand with widely scattered large white pines. More than 1/3 of the growing stock is red maple. Associates include white birch, red oak, fir, white pine and yellow birch. Minor species are sugar maple, aspen and cedar. The pines are mostly large rough and limby pasture-grown trees left behind from the previous harvest. Except for the pines, the stand is even-aged. The number of stems is highest in the 4" diameter class. Trees range from 4" to 36" in diameter, with an average of 7". The basal area is 142 ft^2/acre for all stems. For commercial size 6"+ diameter trees in the canopy, the average diameter rises to 8" and the basal area is 130 ft^2/acre. The stand is overstocked. Canopy height is moderate (except for the tall pine) and crown closure is high.



Quality of the canopy trees is good. Many of the oak, birch and even red maple poles are acceptable growing stock. Growth rate is about ¼ cord per acre per year. Standing volume is high with 34 cords of pulpwood and 1.1 mbf of sawtimber per acre. The sawtimber is white pine, aspen, oak and yellow birch. Regeneration is not common, but where present is fir.

RECOMMENDATIONS

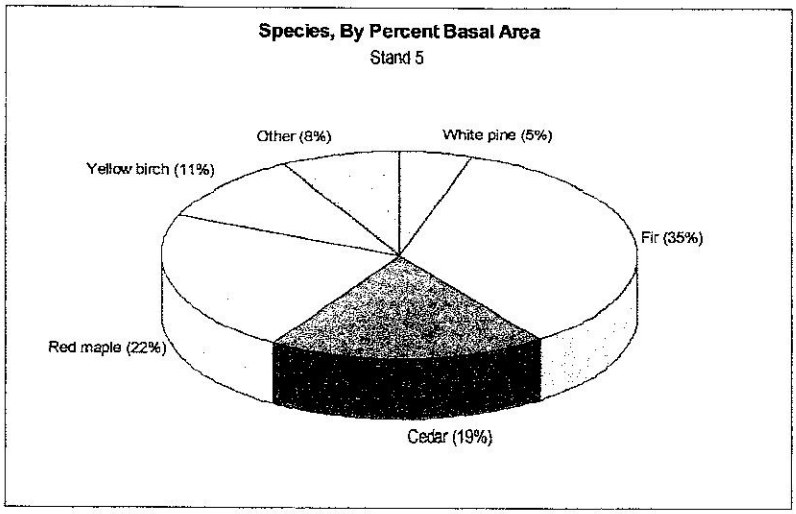
Long-term objective for stand 4 is timber production. Maintain hardwood timber type. Structure goals should be a minimum basal area of 65-70 ft^2/acre and a largest diameter tree of 24". A 15-year selection harvest cycle will produce a sustainable yield of the equivalent of 45 cords per harvest. Manage on an even-aged basis for the intermediate term.

A harvest at this time could remove as much as ½ of the canopy basal area to attain the recommended harvest level. Favor the better quality individuals, especially the oak. This will yield about 85 cords for an estimated value of $760. High priority.

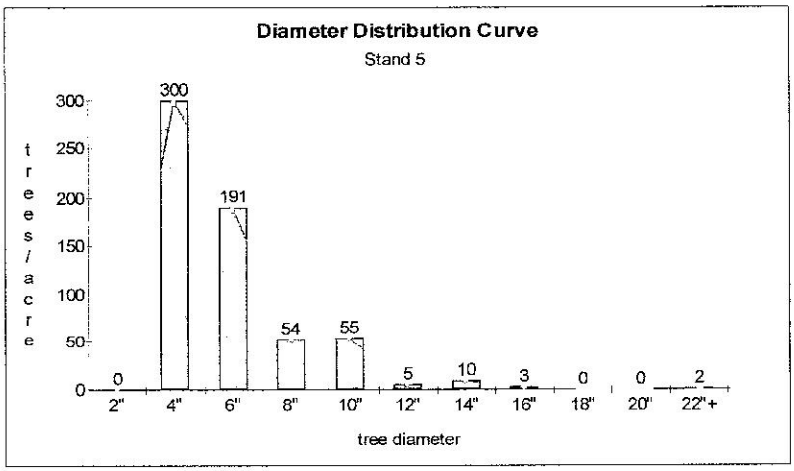
A light or no cut should be done adjacent to the wet area across from the swamp and along the stream. A stable stream crossing with appropriate erosion control measures needs to be established if access is from stand 3. This could be simply a pole ford in winter.

STAND 5 - MIXEDWOOD POLETIMBER (M-2-A) 6 acres

Stand 5 is in the south end of the eastern portion of the lot. Property boundaries are on 3 sides of the stand. Accessibility is through stand 4 to the north and is about 800' from the trail entrance in stand 3. The terrain is a gentle slope down to the east end. Soils are mostly moist and stony. Site quality is good to excellent for both white pine and red oak. Operability with machines is good, limited somewhat by moist ground. Like stand 4, stand 5 was harvested about 40 years ago. A fire had burned a small spot (~ 1/10 acre) in the middle of the southeast boundary maybe 5 years ago. It seems to have come into the lot from the adjacent former clearcut area.



Stand 5 is a mixedwood stand primarily composed of poletimber. Fir, red maple and cedar together take up ¾ of the growing space. Associates include yellow birch and white pine plus smaller amounts of aspen, red oak and white ash. As in stand 4, the few scattered pines here are mostly large and limby. They had grown in the open when young and were left behind from the previous harvest. Except for the pines, the stand is even-aged. Trees range from 4" to 40" in diameter, with an average of 6". The biggest trees are the older generation pines of 120± years. Total basal area is 139 ft^2/acre, but it drops to 113 ft^2/acre for canopy stems. Stocking is adequate for a mixed stand. Canopy height is moderate (except for the tall pine) and crown closure is high.



Tree quality in the stand is fair. Firs have died, resulting in snags and blowdowns. Many of the hardwoods, fir and big pine are pulp quality. The cedar is not marketable as pulp, but some stems can be utilized for poles and posts. Growth rate is about 0.4 cord per acre per year. Standing volume is moderate with 28 cords of pulpwood and only 0.3 mbf of sawtimber per acre. Sawtimber volume is a very small proportion (2%) of total commercial wood volume. Regeneration is inadequate in most places and is limited to mostly fir. Raspberries and red maple sprouts are growing in the burn area.

RECOMMENDATIONS

Long-term objective for stand 5 is timber production. Stocking should be a minimum basal area of 90-100 for the main canopy. A 15-year selection harvest cycle will produce a sustainable yield of the equivalent of 45 cords per harvest. The stand will transition to an uneven-aged stand structure.

By strict numbers, stand 5's stocking level doesn't call for reduction. However, consideration should be given to salvaging the commercial fir before it dies. This represents a basal area of 38 ft^2/acre and 60 cords, valued at $900. If the fir is removed, the canopy basal area would become 75 ft^2/acre, the level of minimum stocking for a mixed stand. The result of this harvest will shift the species mix more to hardwoods. The salvage cut can easily be combined with thinning stand 4. Moderate priority.

STAND 6 - HARDWOOD SAPLINGS/POLES (H-2- C) 2½ acres

Stand 6 is in the south end of the west half of the property. It is adjacent to West Appleton Road. Stand 6 is a shrub/wooded swamp. Terrain is flat and soils are very poorly drained. Both site quality and operability are poor. It is identified as Maine wetland #129 as well as town wetland #5W5, which has a high wildlife habitat value .

No inventory was taken of stand 6. Most of the trees here are red maple. A few fir, pine, spruce and yellow birch are also present. It is composed of saplings and poles. Stocking is low with sparse crown closure. Canopy height is moderate. Woody shrubs are thick, notably alder and winterberry.

Tree quality is generally poor. Growth rate is low, at less than ¼ cord per acre per year. Standing volume is low, about only 4 cords of pulpwood per acre and no sawtimber.

RECOMMENDATIONS

The long-term management objective is protection of the wetlands for its intrinsic ecological function and beauty, as well as its value as a wildlife habitat.

Stand 6 should be left undisturbed and left to develop naturally. A no-cut protective buffer should be established along the wetland's edge in stand 1.

CONCLUSIONS

The McLaughlin lot contains excellent sites for timber production. Access and operability are both very good. One trail is currently used recreationally. The swamp and seasonal streams should be protected.

SUMMARY OF MANAGEMENT PRIORITIES
2001-2011

Year	Stand	Activity	Estimated Income/(cost)
2001-06	All	Blaze and paint all lines (~5,600'), especially the part of the west boundary lacking a stone wall	$275
2002-06	1	Selection harvest; ~100 cords	$800
	3	Selection harvest; ~50 cords, 2 mbf	$400
	4	Thinning; ~85 cords	$760
	5	Fir salvage; ~60 cords	$900
2011	All	Update management plan	($?)